

Patent Claims

1. A device for inserting sheets into an envelope, comprising

- 5 a) a holding device (11) for the envelope;
 b) transport members (15) for feeding the sheets to be inserted to the holding device (11);
 c) a feed device (7, 8, 9) for feeding the envelope to the holding device (11), along a feed
10 direction; and
 d) a removal device (8, 22) for removing the filled envelope from the holding device (11), along a removal direction;

characterized in that

- 15 e) the feed device (7, 8, 9) and the removal device (8, 22) are arranged relative to the holding device (11) in such a manner that a first angle between the feed direction and a main surface of the holding device (11) and a second
20 angle between the removal direction and the main surface of the holding device (11) are predetermined in a fixed manner and are different from each other.

- 25 2. The device as claimed in claim 1, characterized in that the removal device (8, 22) is arranged relative to the holding device (11) in such a manner that the main surface of the holding device (11) is permanently parallel to the removal direction.

- 30 3. The device as claimed in claim 2, characterized in that the feed device (7, 8, 9) comprises a guide element (9) with a discharge point, the guide element (9) being convex at its discharge point.

- 35 4. The device as claimed in claim 3, characterized in that the guide element (9) is formed by a curved guide plate with a vacuum device.

5. The device as claimed in one of claims 1 to 4, characterized in that the holding element (11) is formed by a pocket onto which the envelope can be pulled.

6. The device as claimed in one of claims 1 to 5, characterized in that the removal device (8, 22) comprises a first conveying device with a first, lower pressing roll (8) and a second, upper pressing roll (22), the second pressing roll (22) being pressed resiliently against the first pressing roll (8).

7. The device as claimed in claim 6, characterized in that the feed device (7, 8, 9) is arranged below the removal device (8, 22), and in that the feed device (7, 8, 9) comprises a second conveying device with an upper pressing roll (8) and a lower pressing roll (9), the first pressing roll (8) of the first conveying device at the same time forming the upper pressing roll (8) of the second conveying device.

8. The device as claimed in one of claims 1 to 7, characterized by a safeguard (67) for the envelope, for preventing a premature removal of the envelope from the holding device (11).

9. The device as claimed in one of claims 1 to 8, characterized in that the removal device (8', 22') comprises a take-off roll (66) with a segment for grasping the filled envelope which is to be removed.

10. The device as claimed in one of claims 1 to 9, characterized in that all of the transport elements (3, 4, 7, 8, 22) for the envelopes are driven by a single motor (50).

11. The device as claimed in one of claims 1 to 10,

characterized in that the feed device (7, 8, 9) has a
segment roll (3) for pulling the envelope off from a
stack, with a rolling segment (3.2) for fully pressing
open a flap of the envelope, and a transport segment
5 (3.3) for transporting the envelope.

12. The device as claimed in claim 11, characterized
in that the segment roll (3) is designed in such a
manner that a first coefficient of friction of a
10 surface of the rolling segment (3.2) is smaller than a
second coefficient of friction of a surface of the
transport segment (3.3).

13. The device as claimed in claim 11 or 12,
15 characterized in that the rolling segment (3.2) and the
transport segment (3.3) are formed by claws which are
arranged on a common rotational axle (3.1).

14. A device for opening an envelope flap with a
20 blowing unit (301), the blowing unit (301) being
arranged in such a manner that it can blow a focused
volumetric flow of air under the envelope flap.

15. The device as claimed in claim 14, the blowing
25 unit (301) comprising a nozzle (303) with a nozzle
duct, the nozzle duct having a long-drawn-out shape
with a length which corresponds essentially to the
maximum length of the envelope flap, and the nozzle
duct being arranged essentially parallel to the
30 envelope flap.

16. A device for the continuous feeding of stacks of
envelopes, which device can lift the stacks of
envelopes in a stacking region along a straight path
35 (103), with a first lift (110), which can be displaced
along a section of the straight path (103), and a
second lift (116), which can be displaced along the
section of the straight path (103), it being possible

for both lifts (110, 116) to be displaced independently of each other along an entire length of the section of the straight path (103), and it being possible for the second lift (116) to be completely moved away from the stacking region.

17. The device as claimed in claim 16, characterized in that the first lift (110) and the second lift (116) are designed in such a manner that they can extend in a comb-like manner through each other.

18. The device as claimed in claim 16 or 17, characterized in that the second lift (116) is mounted in a manner such that it can move along an essentially oval path.

19. A method for inserting sheets into an envelope, having the following steps:

- a) feeding the envelope along a feed direction;
- b) bending a front part of the envelope, so that the front part is aligned with a holding device (11);
- c) pulling the envelope onto the holding device (11), the envelope returning elastically into an original, flat form;
- d) inserting the sheets into the envelope;
- e) removing the filled envelope from the holding device (11), along a removal direction parallel to a main surface of the holding device (11).

20. The method as claimed in claim 19, characterized in that, for the bending, the front part of the envelope is sucked by means of negative pressure onto a convex surface (9).

21. The method as claimed in claim 19 or 20, characterized in that, for the feeding, the envelope is pulled off from a stack, with a flap of the envelope

first of all being fully pressed open and the envelope then being grasped and transported.

22. A method for opening an envelope flap, with a
5 focused volumetric flow of air being blown under the envelope flap.

23. A method for the continuous feeding of stacks of envelopes, having the following steps:

- 10 a) receiving a first stack of envelopes by a first lift (110) in a receiving position,
- b) lifting the first stack of envelopes by the first lift (110),
- c) taking over the first stack of envelopes by a
15 second lift (116) in a transfer position,
- d) moving of the first lift (110) back into the receiving position,
- e) receiving a second stack of envelopes by the first lift (110),
- 20 f) lifting the second stack of envelopes by the first lift (110),
- g) moving the second lift (116) into the transfer position,
- h) taking over the second stack of envelopes by
25 the second lift (116).